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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/536,932	03/27/2000	Kenneth James Pettipiece	2558-605-2US	3959

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EXAMINER

LEE, HWA S

ART UNIT PAPER NUMBER

2877

DATE MAILED: 12/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/536,932

Applicant(s)

PETTIPiece ET AL.

Examiner

Andrew H. Lee

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12, 13 and 23-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 12-13, 23-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 2877

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12, 13, and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over McNamara et al. (6,007,996) in view of Cabib et al. (5,539,517) and Hock (3,822,942).

McNamara et al. describe an in situ method of analyzing cells comprising:

a source for illuminating a sample with radiation within a first band of wavelengths, wherein said first band of wavelengths excites regions within said sample causing said regions to emit radiation within a second band of wavelengths;

an interferometer (Figure 2) for spectrally resolving said wavelengths within said second band of wavelengths, wherein said interferometer creates an interferogram of said sample that is superimposed on an image of said sample transmitted by said interferometer, wherein said interferometer includes:

at least two turning mirrors; and

one beam splitter (33);

a detector array (37), wherein said sample and said interferogram of said sample are imaged on said detector array, wherein said detector array outputs a plurality of signal corresponding to an intensity at each pixel of said array; and

Art Unit: 2877

a processor (28) coupled to said detector array and coupled to a monitor (28), said processor displaying an image of said sample on said monitor.

McNamara et al. do not expressly show that the mirrors of the interferometer has rotating mirrors, however McNamara teaches that the interferometer is disclosed in US Patent 5,539,517 to Cabib et al and Cabib et al shows that the mirrors are rotating mirrors, thus it would have been inherent that the mirrors of McNamara are rotating.

McNamara et al do not show the use of polarized light, in particular, a polarizing beamsplitter. Hock shows a Sagnac interferometer in Figure 9 wherein the beamsplitter is a polarizing beamsplitter that substantially reflects a first polarization and substantially transmits a second preferred polarization. At the time of the invention, one of ordinary skill in the art would have modified the Sagnac interferometer of McNamara to use the polarizing beamsplitter of Hock's Sagnac interferometer since Hock teaches that the light leaves the interferometer "loss-free," and it is within the general knowledge of one of ordinary skill in the art to use polarized light in an interferometer to minimize light lost in an interferometer due to cross-talk.

One of ordinary skill in the art would see that the light leaving the interferometer of McNamara is only a partial amount of light that enters the interferometer. In the McNamara interferometer, the light from the source is split at the beamsplitter so that 50% reflects to a first path and the other 50% transmits to a second path. The light traveling the first path is directed around back to the beamsplitter where half of the 50% of the light is transmitted to the detector resulting in a total amount of 25% of the original light at the detector and the other half of the 50% is reflected back to the light source. The similar occurs to light going in the second path so

Art Unit: 2877

that there is a total of 50% of the original light eventually reaching the detector (25% from the first path and 25% from the second path).

Hock teaches that the polarized Sagnac interferometer is "loss-free" as explained in column 9, lines 58+ so that all the light entering the interferometer reaches the detector. Therefore, one of ordinary skill in the art would have modified the interferometer of McNamara with Hock.

As for claim 13, Figure 9 of Hock does not show the polarized beamsplitter as a cube. Official Notice is taken that polarizing beamsplitter cubes are old and well known in the art to split a polarized light. See *In Re Malcolm* 1942 C.D.589: 543 O.G.440, and it would have been obvious as a matter of design choice to use a polarized beamsplitting cube since the applicant has not disclosed that a polarized beamsplitting cube solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the polarized beamsplitting cube over a plate.

As for claims 23 and 24, it would have obvious to one of ordinary skill in the art to provide the s-polarized and p-polarized beams since they are plane polarized as taught by Hock and s-polarized with the p-polarized light is a notoriously known nomenclature for plane polarized light.

As for claim 25, although McNamara expressly shows that the mirrors are configured to turn independently. It would have been obvious to one of ordinary skill in the art to configure the mirrors to turn independently so that proper alignment of each of the optical elements.

Response to Arguments

1. Applicant's arguments filed 9/5/02 have been fully considered but they are not persuasive. Applicant argues that none of the references cited disclose a spectral imaging system that includes a beamsplitter that reflects a first preferred polarization and substantially transmits a second preferred polarization. It appears that the applicant is arguing that there is no single reference that teaches the combination of a spectral imaging system having a polarizing beamsplitter. However, the art rejection was based on 35 U.S.C. 103(a) combining the teachings of all the references together and not on 35 U.S.C. 102 as it appears that the applicant is arguing. Furthermore, it is of the examiner's view that the applicant has not traversed why the it would not have be obvious to combine the references as argued in the art rejection.

Conclusion

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Papers related to this application may be submitted to Technology Center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the PTO Fax Center located in CP4-4C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Center number is (703)308-7722 or 308-7724.

If the Applicant wishes to send a Fax dealing with either a Proposed Amendment or for discussion for a phone interview then the fax should:

a) Contain either the statement "DRAFT" or "PROPOSED AMENDMENT" on the Fax Cover Sheet; and

b) Should be unsigned by the attorney or agent.


This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew H. Lee whose telephone number is (703) 305-0538.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC receptionist whose telephone number is (703) 308-0956.



Andrew Lee
Patent Examiner
Art Unit 2877
November 26, 2002/ahl



Frank Font
Supervisory Patent Examiner
Art Unit 2977